Industrial USB

Product Selection Guide

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USB-to-Serial Converters

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USB-to-Serial Converters

	UPort® 1110	UPort® 1130 UPort® 1130I	UPort® 1150	UPort® 1150I	UPort® 1250	UPort® 1250I	UPort® 1410	UPort® 1450	UPort® 1450I
USB Interface									
Compliance	USB 1.1/2.0 compliant								
Connector	USB type A			USB type B					
Speed	12 Mbps (Full-Speed USB)				480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)				
Serial Interface									
Number of Ports	1 x RS-232	1 x RS-422/485	1 x RS-232/422/485		2 x RS-232/422/485		4 x RS-232	4 x RS-232/422/485	
Connector	DB9 male								
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark								
Flow Control	Flow Control: RTS/CTS, XON/XOFF								
FIFO	64 bytes				128 bytes				
Baudrate	50 bps to 921.6 Kbps								
Embedded ESD Protection	15 KV								
Optical Isolation	–	2 KV (UPort 1130I)	–	2 KV	–	2 KV	–	–	2 KV
Driver Support									
Windows 98/ME	✓	✓	✓	✓	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003 x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows Vista x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 7 x86/ x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
WinCE 5.0/6.0	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 2.4.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 2.6.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 3.0.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Physical Characteristics									
Housing	ABS + PC			SECC sheet metal (1 mm)					
Product Weight	65 g			75 g	180 g		720 g		
Packaged Weight	200 g			370 g	370 g	680 g	1320 g		
Dimensions (mm)	38.4 x 60 x 20			52 x 80 x 22	77 x 26 x 111		204 x 30 x 125		
Environmental Limits									
Operating Temperature	0 to 55°C								
Operating Humidity	5 to 95% (non-condensing)								
Storage Temperature	-20 to 70°C								
Standards and Certifications									
Safety	–	–	–	UL 60950-1	UL 60950-1				
EMI	EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B				EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A				
EMS	EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC-61000-4-6, IEC 61000-4-8, IEC-61000-4-11				EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, IEC 61000-4-8, IEC 61000-4-11				
Green Product	RoHS, CRoHS, WEEE				RoHS, CRoHS, WEEE				
Power Requirements									
Power Consumption	30 mA @ 5 VDC	60 mA @ 5 VDC	77 mA @ 5 VDC	260 mA @ 5 VDC	360 mA @ 5 VDC	200 mA @ 12 VDC	385 mA @ 5 VDC	300 mA @ 12 VDC	360 mA @ 12 VDC
Reliabilty									
Warranty	5 years (see www.moxa.com/warranty)								

USB-to-Serial Converters

	UPort® 1610-8	UPort® 1650-8	UPort® 1610-16	UPort® 1650-16	UPort® 2210	UPort® 2410
USB Interface						
Compliance	USB 1.1/2.0 compliant					
Connector	USB type B					
Speed	480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)					
Serial Interface						
Number of Ports	8 x RS-232	8 x RS-232/422/485	16 x RS-232	16 x RS-232/422/485	2 x RS-232	4 x RS-232
Connector	DB9 male					
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark					
Flow Control	RTS/CTS, XON/XOFF					
FIFO	128 bytes				16 bytes	
Baudrate	50 bps to 921.6 Kbps					
Embedded ESD Protection	15 KV					
Driver Support						
Windows 98/ME	–	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓
Windows XP/2003 x86/x64	✓	✓	✓	✓	✓	✓
Windows Vista x86/x64	✓	✓	✓	✓	✓	✓
Windows 2008 x86/x64	✓	✓	✓	✓	✓	✓
Windows 7 x86/ x64	✓	✓	✓	✓	✓	✓
WinCE 5.0/6.0	✓	✓	✓	✓	–	–
Linux 2.4.x	✓	✓	✓	✓	–	–
Linux 2.6.x	✓	✓	✓	✓	✓	✓
Linux 3.0.x	✓	✓	✓	✓	✓	✓
Physical Characteristics						
Housing	SECC sheet metal (1 mm)				Polycarbonate (PC)	
Product Weight	835 g		2475 g		120 g	210 g
Packaged Weight	1440 g		3440 g		325 g	455 g
Dimensions (mm)	204 x 44 x 125		440 x 45.5 x 198.1		70 x 35 x 120	80 x 35 x 185
Environmental Limits						
Operating Temperature	0 to 55°C					
Operating Humidity	5 to 95% (non-condensing)					
Storage Temperature	-20 to 70°C					
Standards and Certifications						
Safety	UL 60950-1					
EMI	EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A				EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B	
EMS	EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11				EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC-61000-4-6, IEC 61000-4-8, IEC-61000-4-11	
Green Product	RoHS, CRoHS, WEEE					
Power Requirements						
Power Consumption	230 mA @ 12 VDC	340 mA @ 12 VDC	130 mA @ 100 VAC	150 mA @ 100 VAC	140 mA @ 5 VDC	240 mA @ 5 VDC
Reliabilty						
Warranty	5 years (see www.moxa.com/warranty)					

USB Hubs

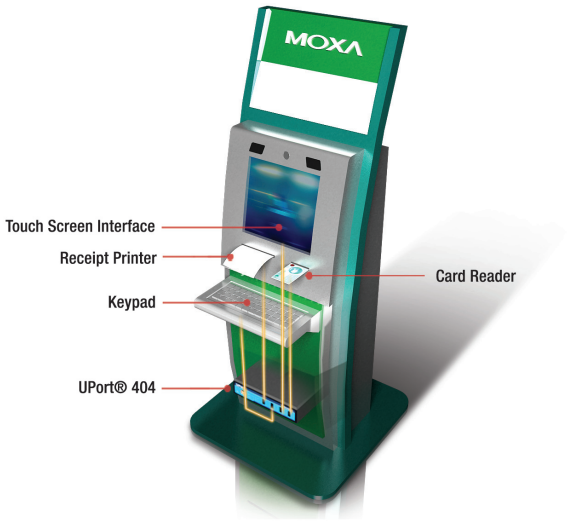
	UPort® 404	UPort® 407	UPort® 404-T	UPort® 407-T	UPort® 204	UPort® 207
USB Interface						
Compliance	USB 1.1/2.0 compliant					
Upstream USB Ports	1 (Type B)					
Downstream USB Ports	4 (Type A)	7 (Type A)	4 (Type A)	7 (Type A)	4 (Type A)	7 (Type A)
Speed	480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)					
Supply Current	500 mA max. per channel					
Physical Characteristics						
Housing	Aluminum				Polycarbonate (PC)	
Dimensions (mm)	80 x 35 x 130	100 x 35 x 192	80 x 35 x 130	100 x 35 x 192	80 x 35 x 130	100 x 35 x 195
Environmental Limits						
Operating Temperature	0 to 60°C	0 to 60°C	-40 to 85°C	-40 to 85°C	0 to 60°C	0 to 60°C
Operating Humidity	5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)
Storage Temperature	-20 to 75°C	-20 to 75°C	-40 to 85°C	-40 to 85°C	-20 to 75°C	-20 to 75°C
Standards and Certifications						
Safety	UL 508, LVD					
EMI	EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4, FCC Part 15 Subpart B Class A					
EMS	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11					
Green Product	RoHS, CRoHS, WEEE					
Power Requirements						
Power Consumption	1300 mA @ 12 VDC	2300 mA @ 12 VDC	1300 mA @ 12 VDC	2300 mA @ 12 VDC	1210 mA@ 12 VDC	2170 mA @ 12 VDC
Reliabilty						
Warranty	5 years (see www.moxa.com/warranty)					

Introduction to USB Connectivity

Moxa's UPort® line of USB connectivity products include a wide range of solutions for connecting COM ports or USB ports to a PC through the PC's USB port. Moxa's UPort® products are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, come with LED indicators for easy monitoring, and are even suitable for heavy-load applications. The UPort® product line includes USB-to-serial converters with 1, 2, 4, 8, or 16 independent RS-232, RS-422/485, and RS-232/422/485 serial ports for connecting data acquisition equipment and many other types of serial devices to notebooks and desktop PCs, and USB hubs with 4 or 7 USB ports for expanding the number of built-in USB ports on a host PC.

Available Products

USB-to-serial converters: UPort® 1000 and UPort® 2000 series
USB hubs: UPort® 200 and UPort® 400 series



Instant Plug & Play

UPort® products allow you to connect serial devices or USB devices to your laptop or workstation through a USB (Universal Serial Bus) port. These plug & play USB solutions are perfect for mobile, instrumentation, and point-of sale applications.

USB-IF Certified

Moxa's UPort® 200 and UPort® 400 series of USB 2.0 hubs have passed USB-IF (USB Implementers Forum) certification, which verifies that products meet a number of strict electrical requirements for Hi-Speed USB operation designed to the USB 2.0 specifications. This means that the UPort® 200/400 series support Hi-Speed USB 2.0 for up to 480 Mbps USB transmission, are fully compliant with the requirements for interoperability, provide enough power to attached devices, and can transition back to high-speed operation from the suspend state.

Reduce Short and Long Term Costs

For many applications, system integrators are moving towards using either serial-to-Ethernet or USB-to-serial products to connect serial devices to a PC. The overall costs of setting up an application is reduced, not only from a short term hardware investment perspective, but also by reducing costs associated with long term management and integration. Another big plus to using Moxa's USB-to-serial solutions is that each product supports a broad range of operating systems. Drivers are available for Windows 7 x86/x64, Windows XP/2003/Vista /2008 x86/x64, Windows 98/ME/2000, WinCE 5.0/6.0, and Linux 2.4.x, 2.6.x, 3.0.x.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than one thousand volts of ESD with a high rise time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 400 series USB hubs provide ESD level 4 (contact 8 KV, air 15 KV) protection, which increases the quality and value of the user's end-product.

RS-232/422/485 Support

Moxa's UPort® 1000/2000 series of USB-to-serial products include models that support some or all of the RS-232/422/485 serial interfaces. The full slate of RS-232 signals (TxD, RxD, DTR, DSR, RTS, CTS, DCD) are supported, and both 2-wire and 4-wire RS-485 can be used. Many of Moxa's USB-to-serial products use DB9 male connectors for the serial ports, and for industrial applications, the DB9 female to terminal block accessory can be used. In addition, users can select baudrates up to 921.6 Kbps, and make use of the 128-byte FIFO.

Always Enough Power

Some UPort® models support both bus power and external power through the power adaptor. Bus power can be used with laptop and workstation connections that support a 500 mA output for USB devices. An external power adaptor can be used if your computer's USB port does not provide enough amperage to run the UPort®.

Top Serial Performance

Moxa's 20-plus years of experience in serial board design is now built into a new top performance CPU called MOXA ART. This chip equips the UPort® converters with USB 2.0 (Hi-Speed 480 Mbps), a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode, making Moxa's UPort® converters perform far better than the competition.

Patented COM Preserver

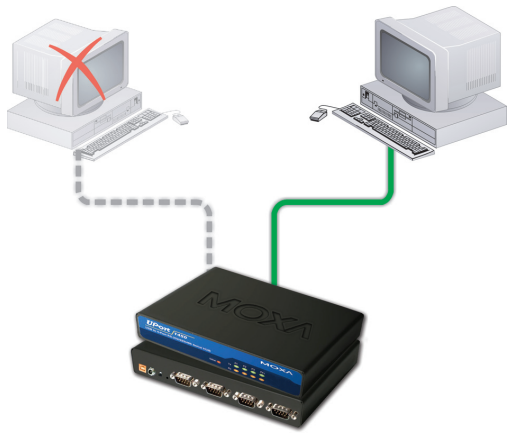
Serial transmission applications use names such as COM3 and COM4 to identify COM ports. Unfortunately, most USB-to-serial products are unable to use fixed COM names on the host PC. This means that the names of the COM ports change when the USB-to-serial device is plugged into a different USB port, either on the same or a different PC, forcing the user to reconfigure the COM names manually from within the application.

Moxa's UPort® 1200/1400/1600 USB-to-serial hubs have an advanced feature that allows them to use fixed COM names. When the user enables the "COM Preserver™" function, the COM names "go with" the UPort® device. In fact, Moxa's drivers can even create the same COM port names on a different host PC. With this feature, you do not need to modify application programs, or rebuild the entire project every time you install a new operating system or upgrade the computer. Don't worry about moving the UPort® from one USB hub to another, or even from one computer to another. Once the COM Preserver™ function is enabled, the names of the USB-to-serial COM ports will go with the UPort® wherever it is used.

Note that the COM Preserver™ function is disabled by default. Users can use the traditional method of enumerating COM ports, or enable the COM Preserver™ function to make use of this great new feature.

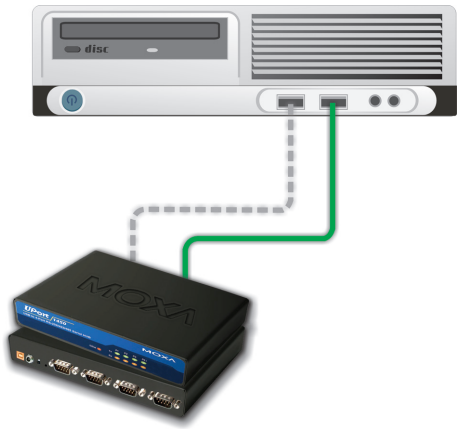
Scenario 1

COM port assignment is maintained across different PCs



Scenario 2

COM port assignment is maintained across different USB ports

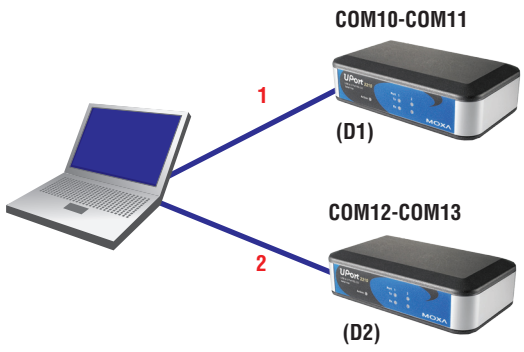


Fixed-base COM Mode

Moxa's UPort® 1000 series, and UPort® 2000 series of products provide a unique fixed-base COM function that allows users to set a specific initial COM port number. Regardless of which UPort® is plugged into the host, the COM port numbers for the UPort®'s serial ports will be numbered sequentially starting with the initial COM port number.

For example, assume that you have set COM10 as the first COM number that will be assigned. If UPort® D1 is plugged into your computer first, your computer will assign COM10 and COM11 to the UPort®'s serial ports. When UPort® D2 is plugged in, the computer will assign COM numbers COM12 and COM13.

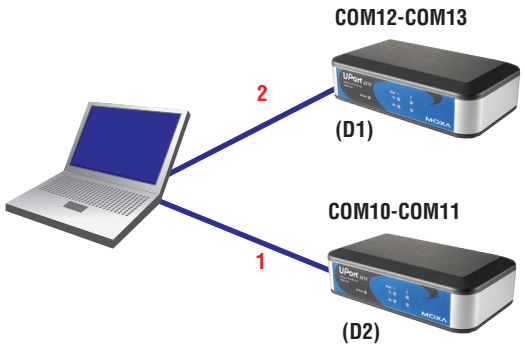
Scenario 3



If both UPorts are unplugged from the computer, and then UPort® D2 is plugged back in, the computer will now assign COM10 and COM11 to the UPort's serial ports. When UPort® D1 is plugged back in, COM numbers COM12 and COM13 will be assigned the UPort's serial ports.

When "Fixed-base COM Mode" is enabled for the first time, all COM port numbers and serial port parameters will be reset to their default values. You can then set the COM numbers and configuration parameters to the values needed for your application.

Scenario 4



Function Support Table

Model	Serial Number	Fixed-based COM	COM Preserver
UPort® 1100 Series	–	✓	–
UPort® 1200/1400/1600 Series	✓	✓	✓
UPort® 2000 Series	–	✓	–

Magnet Accessory for Attaching to PC Housing

The typical way to use a device such as the UPort® 1400/1610-8/1650-8 is to place the UPort® on the desk near the laptop or desktop PC. However, placing the UPort® in this way wastes space, and due to the nature of USB, makes it more likely that the connection between the PC and UPort® will get disconnected. The "magnet" solution introduced by Moxa is simple, but innovative. The solution uses magnet accessories that come with the product to attach the UPort® to the host PC's housing. Not only do you save space, but you can also fix the position of the USB cable that attaches the UPort® to the PC.

COM Port Numbers Displayed in Windows System Tray

When using a UPort® to connect a serial device to your PC, it may be necessary to determine the COM port number assigned to the serial device. A new tool provided by Moxa gives engineers a handy means of monitoring the COM port number of the device. When the UPort® is plugged into your computer's USB port, a UPort® icon will be placed in the Windows System Tray located in the lower right corner of the desktop. Simply position the cursor over the UPort® icon, and an information window showing the COM port number will pop up. When two or more UPorts are connected to the same computer, the pop-up window will show the COM numbers for all of the UPorts.

UPort® Models Listed by Interface and Number of Ports

USB-to-Serial Converters

Interface	No. of Ports	Model Name
RS-232	1	UPort® 1110
	2	UPort® 2210
	4	UPort® 1410
		UPort® 2410
	8	UPort® 1610-8
	16	UPort® 1610-16
RS-422/485	1	UPort® 1130/1130I
RS-232/422/485	1	UPort® 1150/1150I
	2	UPort® 1250/1250I
	4	UPort® 1450/1450I
	8	UPort® 1650-8
	16	UPort® 1650-16

USB Hubs

Interface	No. of Ports	Model Name
USB	4	UPort® 204
	4	UPort® 404
	7	UPort® 207
	7	UPort® 407
	4	UPort® 404-T
	7	UPort® 407-T

Important Considerations for USB Devices in Industrial Applications

USB (Universal Serial Bus) is the most popular interface in the IT industry today, In recent years, USB has also gained popularity in industrial applications as more and more devices support the interface. But industrial operations are more demanding than your typical office application and require additional considerations. For example, a factory floor may be subject to extreme temperatures that are too hot for a consumer-grade USB hub to handle. Industrial applications also require a higher level of reliability because system downtime is not only costly but potentially dangerous. To ensure that your USB devices meet these demands, system engineers should consider the following factors when selecting a USB device for industrial environments.

USB-IF Certification

Although any vendor can design a USB product that meets the USB specifications, the product may not have been tested for flaws. When considering which USB product to buy, you should check to make sure that the product has received USB-IF certification, and that the product is listed in the USB-IF Integrators List on the USB-IF website. Products that are certified to carry the USB logo have been tested for both reliability and interoperability.

Moxa's USB 2.0 Hubs First to Receive USB-IF Certification

Moxa's new line of industrial-grade USB hubs, the UPort® 200 and UPort® 400 series, are the world's first to receive USB-IF certification for reliable peripheral plug-and-play devices. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. As USB-IF certified products, the UPort® 200 and UPort® 400 series have passed high speed compliance testing and are eligible to bear the official USB logo.

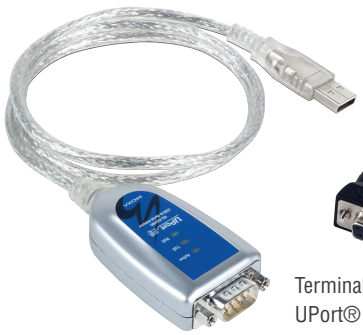
The UPort® 200 and UPort® 400 series are external plug-and-play hubs that can be plugged into a standard USB port for instant peripheral device connectivity. For industrial networks, high reliability can never be compromised. As defined by the USB-IF (USB Implementers Forum), certification for Moxa's UPort® USB hubs guarantees:

- 480 Mbps USB 2.0 transmissions
- Device accessibility
- Full power for connected devices
- High-speed operation from suspend mode

To guard against serious damage, the UPort® 200 and UPort® 400 series have doubled their ESD protection from Level 2 (4 KV) to Level 4 (8 KV) to provide 8 KV of ESD protection for direct contact and 15 KV of ESD protection for contact through the air. Wide temperature models (UPort® 200-T and UPort® 400-T) are also available for use in extreme temperatures ranging anywhere from -40 to 85°C.

UPort® 1100 Series (cable-type)

1-port RS-232, RS-422/485, and RS-232/422/485 USB-to-serial converters



Terminal Block Adaptor for UPort® 1130/1130I/1150

- Compatible with USB 2.0
- 12 Mbps USB data rate
- 921.6 Kbps maximum baudrate for super fast data transmission
- Drivers provided for Windows, WinCE, and Linux
- Mini DB9 female to terminal block adaptor for easy wiring
- LEDs for indicating USB and TxD/RxD activity
- 15 KV ESD protection for all serial ports
- 2 KV optical isolation protection (UPort 1130I only)

Overview

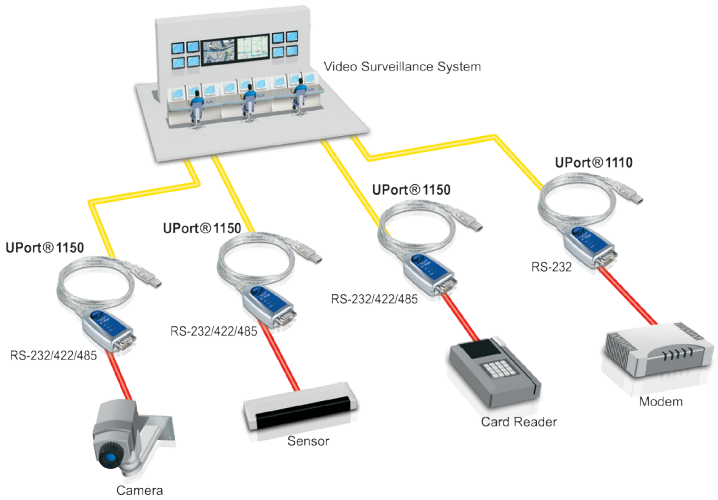
The UPort® 1100 series USB-to-serial converters are the perfect accessory for laptop computers that do not have a serial port, and are essential for engineers who need to connect different serial devices in the field or separate interface converters for devices without a standard COM port or DB9 connector. The UPort® 1110 converts from USB to RS-232, the UPort® 1130/1130I from USB to RS-422/485, and the UPort® 1150 from USB to RS-232/422/485. All products are compatible with new and legacy serial devices, and can be used with mobile, instrumentation, and point-of-sale applications.

Typical Application—Surveillance Monitoring System

The most basic video surveillance setup consists of a single camera connected directly to a monitor and recording device. However, many businesses require video surveillance on a larger scale requiring a dedicated management system. Existing management systems often lack device-port versatility, making converters a necessity when connecting different devices. Management systems needing USB-to-serial converters for serial devices such as card readers, modems, video cameras, and sensors, now have a simple solution. Moxa's UPort® 1110/1150 converters provide plug-and-play serial device connectivity without having to install new adapter boards, which usually requires opening of computer/server chassis. Also, a unique driver allows the UPort® 1110/1150 to retain COM port numbers when they have been unplugged and then reconnected again, even into a new USB port.

UPort® 1110/1150 convenient characteristics include:

- USB 2.0 compatibility
- RS-232 or RS-422/485 interface
- Stability and reliability
- Cost-effective
- Plug-and-play
- Easy to use



Specifications

USB Interface
Compliance: USB 1.0/1.1 compliant, USB 2.0 compatible
Connector: USB type A
Speed: 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 1
Serial Standards:
UPort 1110: RS-232
UPort 1130/1130I: RS-422/485
UPort 1150: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded
Optical Isolation: 2 KV (UPort 1130I only)

Performance
Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 64 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Windows 9X/ME/2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: ABS + PC
Weight:
Product only: 65 g (0.14 lb)
Packaged: 200 g (0.44 lb)
Dimensions: 38.4 x 60 x 20 mm (1.51 x 2.36 x 0.79 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

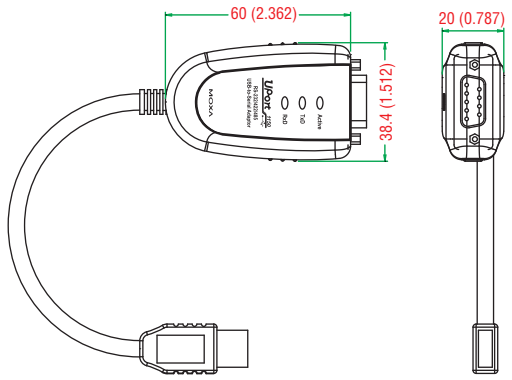
Standards and Certifications
EMC: CE, FCC
EMI: EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B
EMS: EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC-61000-4-6, IEC 61000-4-8, IEC-61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Power Consumption:
UPort 1110: 30 mA @ 5 VDC
UPort 1130: 60 mA @ 5 VDC
UPort 1130I: 65 mA @ 5 VDC
UPort 1150: 77 mA @ 5 VDC

MTBF (mean time between failures)
Time: 1,949,025 hrs
Database: Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1110: 1-port RS-232 USB-to-serial converter
UPort 1130: 1-port RS-422/485 USB-to-serial converter
UPort 1130I: 1-port RS-422/485 USB-to-serial converter with 2 KV optical isolation
UPort 1150: 1-port RS-232/422/485 USB-to-serial converter

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications

Package Checklist
- 1 UPort 1110 or 1130 or 1130I or 1150 USB-to-serial converter
- 1 mini DB9 female to terminal block adaptor (UPort 1130, 1130I, and 1150 only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1150I

1-port RS-232/422/485 USB-to-serial converter with 2 KV isolation

- Compatible with USB 2.0
- 12 Mbps USB data rate
- 15N high retention USB type B connector
- Software selectable RS-232, RS-422, 4-wire RS-485, and 2-wire RS-485
- Drivers provided for Windows, WinCE, and Linux
- 15 KV ESD protection for all serial ports
- 2 KV optical isolation protection
- Full modem status LEDs

Overview

The UPort® 1150I is a USB-to-serial converter with one 3-in-1 RS-232/422/485 serial port, transmission speed up to 921.6 Kbps, and 15 KV ESD protection. For industrial and commercial applications that require enhanced reliability, it is also equipped with 2 KV DC optical isolation protection, providing PCs with both COM port expansion and protection from potentially damaging electrical spikes. Adjustable RS-485 pull high/low resistors are built in for daisy-chained RS-485 networks, allowing engineers to connect to any serial device quickly and easily.

Typical Application—Mini Testers

Many engineers use a combination of USB-to-serial converter plus mini tester to check serial device connections during routine inspections. However, mini testers are inconvenient to use, particularly when you need to connect directly through a device's DB9 connector, and purchasing mini testers for all inspectors in a factory increases the overall operating expense. To get around these problems, Moxa designed the UPort® 1150I, which is an external USB-to-serial converter with 1 RS-232/422/485 DB9 connector and a built-in mini tester. The UPort® 1150I has the following features:

- USB 2.0 compatibility
- RS-232 and RS-422/485 interfaces
- Built-in mini tester function
- Built-in modem status LED indicators for easy diagnosis
- Competitive pricing

Specifications

USB Interface
Compliance: USB 1.0/1.1 compliant, USB 2.0 compatible
Connector: USB type B
Speed: 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 1
Serial Standards: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded
Optical Isolation: 2 KV

Performance
Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 64 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Windows 9X/ME/2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 75 g (0.65 lb)
Packaged: 320 g (0.72 lb)
Dimensions: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B
EMS: EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC-61000-4-6, IEC 61000-4-8, IEC-61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Power Consumption: 260 mA @ 5 VDC

MTBF (mean time between failures)

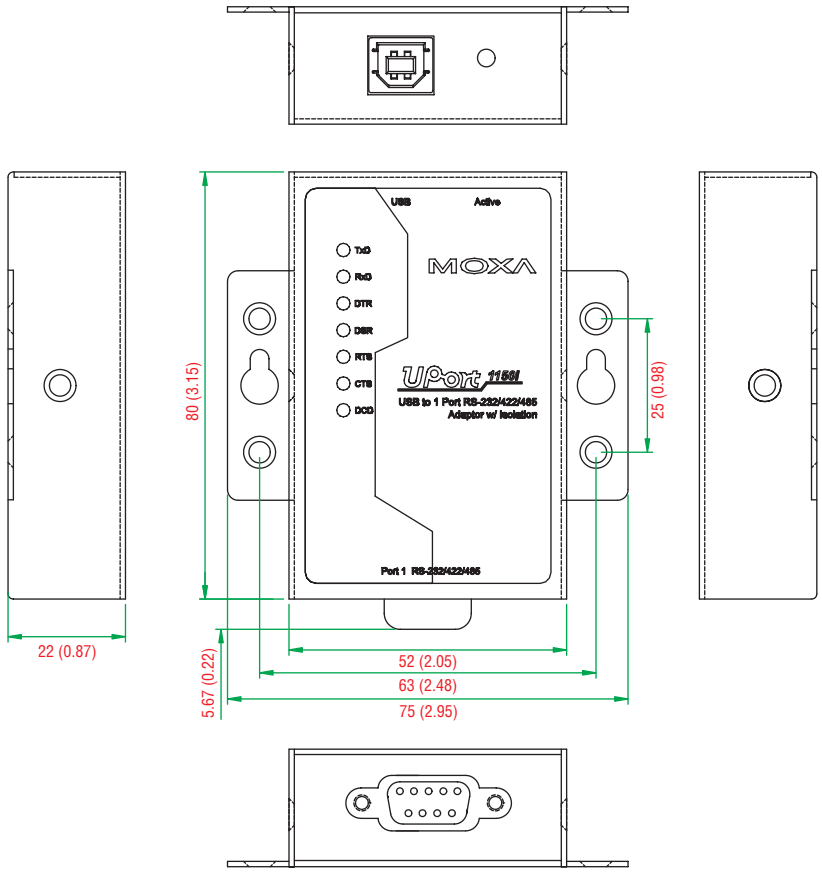
Time: 1,949,025 hrs
Database: Telcordia (Bellcore), GB

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

UPort 1150I: 1-port RS-232/422/485 USB-to-serial converter with 2 KV optical isolation

Optional Accessories (can be purchased separately)

DK35A: Mounting kit for 35-mm DIN-Rail
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications

Package Checklist

- 1 UPort 1150I USB-to-serial converter
- USB-IF certified cable
- 1 mini DB9 female to terminal block adaptor
- Velcro lock-down strap for the USB cable
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1250/1250I

2-port RS-232/422/485 USB-to-serial converters with optional 2 KV isolation

UPort® 1250

UPort® 1250I

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- 15N high retention type B connector
- Drivers provided for Windows, WinCE, and Linux
- LEDs for easy monitoring
- 15 KV ESD protection for all serial ports
- Locking power cord for the UPort 1250I

Overview

The UPort® 1250/1250I USB-to-serial converters allow you to connect 2 RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. These plug & play USB solutions are perfect for mobile, instrumentation, and point-of sale applications.

Typical Application—Connecting Instruments in a Medical Lab

In medical labs, research scientists typically collect large quantities of data from many samples using a variety of different instruments. Most research devices have parameters that can be accessed via a serial port for convenient reconfiguration. Laptops are often used as convenient and space-efficient computing solutions in medical labs, but most modern laptops no longer offer serial ports and only come equipped with USB ports. This presents a connectivity issue unless the USB ports can be expanded into serial ports.

Moxa's solution is the UPort® 1250, which is an RS-232/422/485 USB-to-serial converter that can be used to connect 2 serial interface instruments to a computer's USB port, and is particularly convenient for medical researchers since advanced technical expertise is not required. The UPort® 1250 has the following features:

- 2 serial ports for easy USB-to-serial expansion
- True USB 2.0 high-speed transmission
- 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission
- Easy troubleshooting with LED indicators for each serial port
- Compatible with both laptops and desktop PCs

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 2
Serial Standards: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded
Optical Isolation: 2 KV (UPort 1250I only)

Performance
Baudrate: 50 bps to 921.6 Kbps (including 500 Kbps)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Window 2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics

Housing: SECC sheet metal (1 mm)
Weight:
Product only: 180 g (0.40 lb)
Packaged:
UPort 1250: 370 g (0.82 lb)
UPort 1250I: 680 g (1.5 lb)
Dimensions: 77 x 26 x 111 mm (3.03 x 1.02 x 4.37 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, IEC 61000-4-8, IEC 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Power Consumption:
UPort 1250 (bus power): 360 mA @ 5 VDC
UPort 1250I (12 to 48 VDC external power): 200 mA @ 12 VDC

MTBF (mean time between failures)

Time: 563,179 hrs
Database: Telcordia (Bellcore), GB

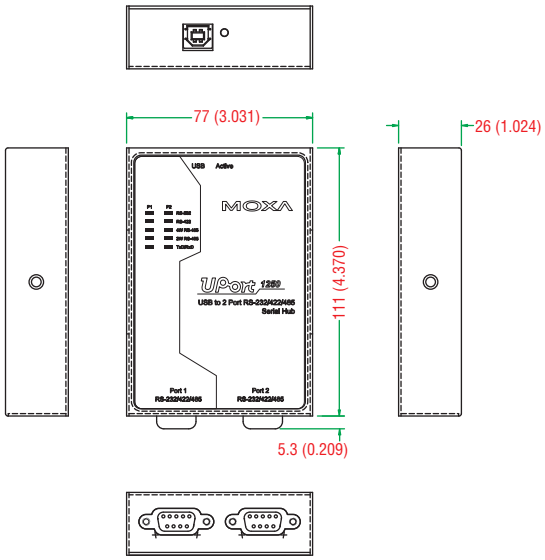
Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

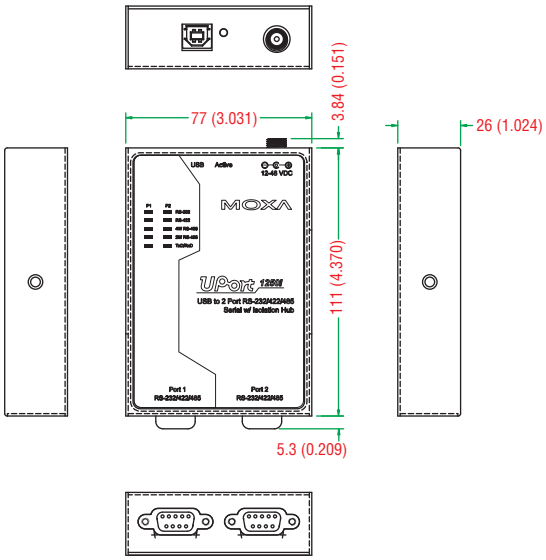
Dimensions

Unit: mm (inch)

UPort® 1250



UPort® 1250I



Ordering Information

Available Models

UPort 1250: 2-port RS-232/422/485 USB-to-serial converter
UPort 1250I: 2-port RS-232/422/485 USB-to-serial converter with 2 KV optical isolation, adaptor included

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications
Wall Mount Kit: Metal plates and screws
DK35A: Mounting kit for 35-mm DIN-Rail
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications

Package Checklist

- 1 UPort 1250 or 1250I USB-to-serial converter
- USB-IF certified cable
- 1 mini DB9 female to terminal block adaptor
- Power adaptor (UPort 1250I)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1400 Series

4-port RS-232 and RS-232/422/485 USB-to-serial converters with optional 2 KV isolation

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- 15N high retention USB type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- Built-in 15 KV ESD protection for all serial ports
- 2 KV optical isolation protection (UPort 1450I only)
- Hassle-free COM port retention
- Drivers provided for Windows/WinCE/Linux
- Choose bus power or external power (UPort 1410/1450 only)
- Locking power jack

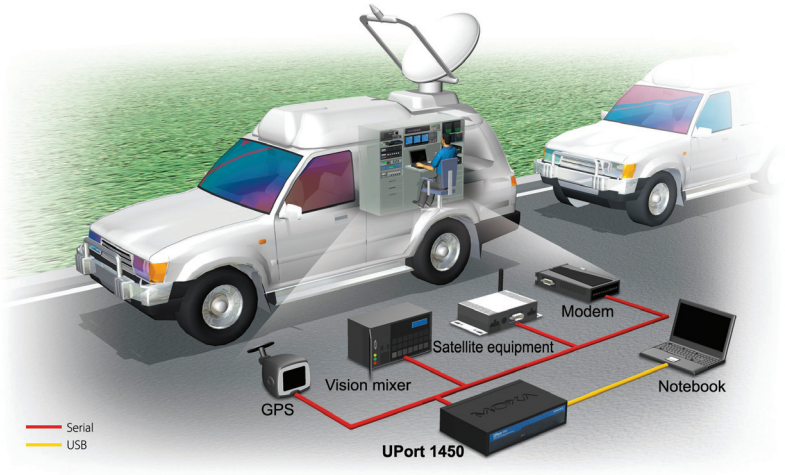
Overview

The UPort® 1400 USB-to-serial converters allow you to connect 4 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1400 converters are compatible with new and legacy serial devices, and are perfect for mobile, instrumentation, and point-of-sale applications.

Typical Application—Military Satellite Truck

Before the arrival of mobile satellite technology, military applications relied on terrestrial communication systems to collect data in remote locations and broadcast the signals to a geostationary communications satellite. Satellite trucks, which are commonly used in modern Satellite News Gathering (SNG), allow military command centers to gather intelligence and other data with greater mobility and flexibility than before. Due to the mobile nature of SNG technology, onboard data acquisition equipment needs to be highly portable yet provide seamless and reliable communication. In addition, satellite trucks are outfitted with various degrees of video production and editing gear that need to be readily available and connected at all times. One of our military clients uses Moxa's UPort® 1450 converter as their solution of choice for reliable device connectivity in their fleet of satellite trucks. The UPort® 1450 has the following features:

- No data loss with 128-byte FIFO and on-chip flow control for hardware and software
- Electrostatic protection and LED indicators designed for critical environments
- Small form factor and wall-mountable to save space
- Easy COM port configuration and plug & play capability
- 3-in-1 RS-232/422/485 support for connecting any serial interface device



Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 4
Serial Standards:
UPort 1410: RS-232
UPort 1450/1450I: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded
Optical Isolation: 2 KV (UPort 1450I only)

Performance
Baudrate: 50 bps to 921.6 Kbps (including 500 Kbps)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Window 2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 720 g (1.59 lb)
Packaged: 1320 g (2.91 lb)
Dimensions: 204 x 30 x 125 mm (8.03 x 1.18 x 4.92 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

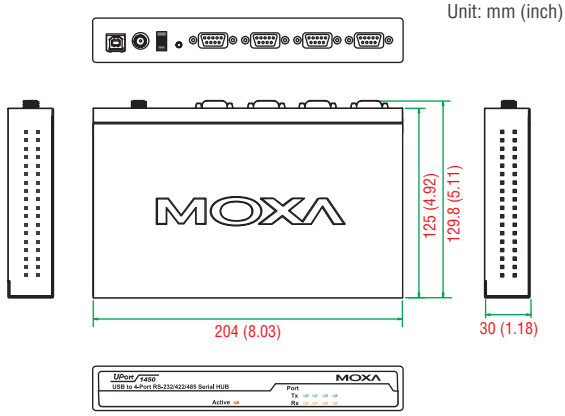
Standards and Certifications
Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Power Consumption:
- Bus power:
  UPort 1410: 385 mA @ 5 VDC
- 12 to 48 VDC external power:
  UPort 1410: 180 mA @ 12 VDC
  UPort 1450: 385 mA @ 12 VDC
  UPort 1450I: 360 mA @ 12 VDC

MTBF (mean time between failures)
Time:
UPort 1410: 394,441 hrs
UPort 1450: 546,770 hrs
Database:
UPort 1410: MIL-HDBK-217F
UPort 1450: Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1410: 4-port RS-232 USB-to-serial converter
UPort 1450: 4-port RS-232/422/485 USB-to-serial converter, adaptor included
UPort 1450I: 4-port RS-232/422/485 USB-to-serial converter with 2 KV optical isolation, adaptor included

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB adaptor: DB9 female to terminal block adaptor for RS-422/485 applications
Magnet Accessory: Magnets for attaching the UPort 1400 to the PC's housing
Wall Mount Kit: Metal plates and screws
DIN-Rail Kit: DIN-Rail kit for the UPort 1400 series
DK35A: Mounting kit for 35-mm DIN-Rail

Package Checklist
- 1 UPort 1400 USB-to-serial converter
- USB-IF certified cable
- 1 mini DB9 female to terminal block adaptor (UPort 1450 and 1450I only)
- Power adaptor (UPort 1450 and 1450I only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Power Adaptors (can be purchased separately)
Note: Available for the UPort 1410 if the USB port does not provide enough power. You must purchase the adaptor plus one power cord.
PWR-12125-DT-S2: 100-240 VAC to 12 VDC @ 1.25 A power adaptor
PWC-C7US-2B-183: US plug, 2-pin power cord
PWC-C7UK-2B-183: UK plug, 2-pin power cord
PWC-C7EU-2B-183: EU plug, 2-pin power cord
PWC-C7JP-2B-183: JP plug, 2-pin power cord
PWC-C7AU-2B-183: SAA plug, 2-pin power cord

UPort® 1600-8 Series

8-port RS-232 and RS-232/422/485 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- 15N high retention USB type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- Built-in 15 KV ESD protection for all serial ports
- COM port assignments maintained across different PCs
- Mini DB9 female to terminal block adaptor for easy wiring
- Drivers provided for Windows, WinCE, and Linux
- Locking power cord

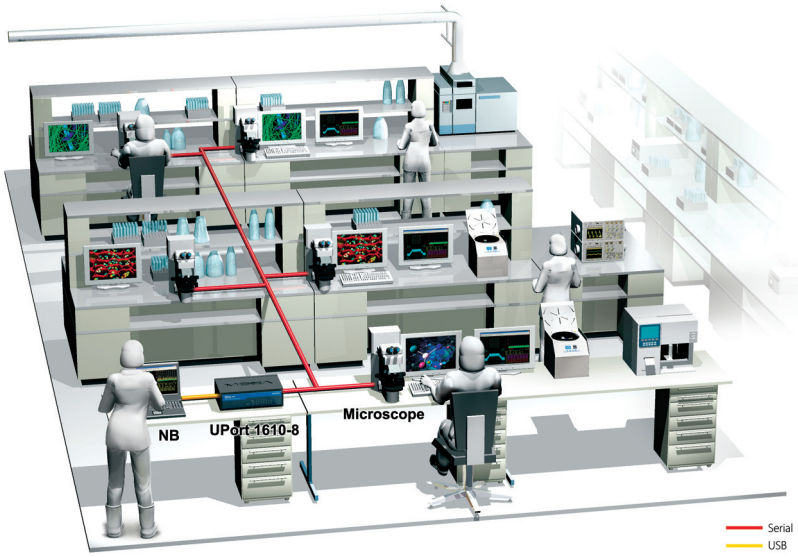
Overview

The UPort® 1600-8 USB-to-serial converters allow you to connect 8 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1600-8 converters are compatible with new and legacy serial devices, and are perfect for instrumentation and manufacturing applications.

Typical Application— Application Topology

Medical scientists and pharmaceutical researchers rely on sophisticated laboratory equipment to discover new treatments for patients. Most research is carried out in teams given the complex and collaborative nature of medical science. Scientists often transfer images and data from microscopes and other equipment to each other's laptops or desktop computers. Connecting all of these pieces of equipment usually requires multiple serial ports, one for each peripheral device. Since computers are only equipped with a limited number of serial ports, expanding a USB connection into multiple serial ports can provide researchers with the connectivity they need to make their next scientific breakthrough. Moxa's solution is the UPort® 1610-8, which is an RS-232 USB-to-serial converter that can be used to connect multiple serial interface microscopes and other equipment to a computer's USB port. The UPort® 1610-8 provides the following benefits:

- Up to 8 ports for easy USB-to-serial expansion
- True USB 2.0 high-speed transmission for large data transmission
- 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission
- Easy troubleshooting with LED indicators for each serial port
- Compatibility with both laptop and desktop PCs



Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 8
Serial Standards:
UPort 1610-8: RS-232
UPort 1650-8: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded

Performance
Baudrate: 50 bps to 921.6 Kbps (including 500 Kbps)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Window 2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 835 g (1.84 lb)
Packaged: 1440 g (3.17 lb)
Dimensions: 204 x 44 x 125 mm (8.03 x 1.73 x 4.92 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

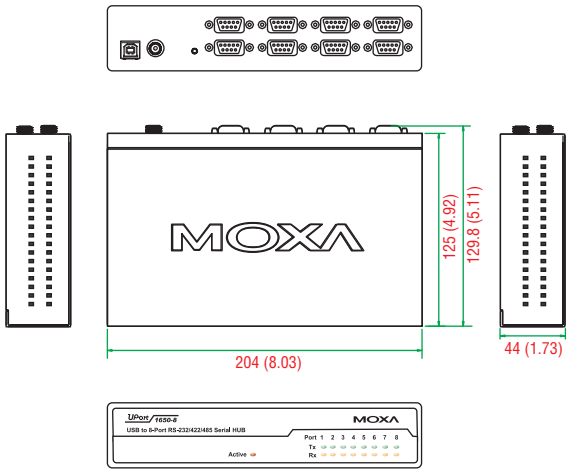
Standards and Certifications
Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Power Consumption:
UPort 1610-8 (12 to 48 VDC external power): 230 mA @ 12 VDC
UPort 1650-8 (12 to 48 VDC external power): 340 mA @ 12 VDC

MTBF (mean time between failures)
Time:
UPort 1610-8: 208,413 hrs
UPort 1650-8: 186,567 hrs
Database: MIL-HDBK-217F

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1610-8: 8-port RS-232 USB-to-serial converter, adaptor included
UPort 1650-8: 8-port RS-232/422/485 USB-to-serial converter, adaptor included

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications
Magnet Accessory: Magnets for attaching the UPort 1600-8 to the PC's housing
Wall Mount Kit: Metal plates and screws
DIN-Rail Kit: DIN-Rail kit for the UPort 1600-8 series
DK35A: Mounting kit for 35-mm DIN-Rail

Package Checklist
- 1 UPort 1600-8 USB-to-serial converter
- USB-IF certified cable
- Power adaptor
- 1 mini DB9 female to terminal block adaptor (UPort 1650-8 only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1600-16 Series

16-port RS-232 and RS-232/422/485 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- 15N high retention USB type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- Standard 19-inch rack-mountable
- Built-in 15 KV ESD protection on all serial ports
- COM port assignments maintained across different PCs
- Mini DB9 female to terminal block adaptor for easy wiring
- Drivers provided for Windows, WinCE, and Linux

Overview

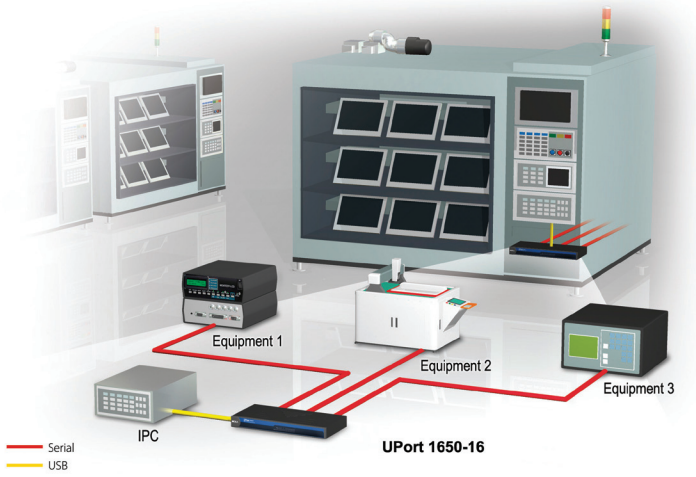
The UPort® 1600-16 USB-to-serial converters allow you to connect 16 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1600-16 converters are compatible with new and legacy serial devices, and are perfect for instrumentation, and manufacturing applications.

Typical Application—TFT-LCD Manufacturing

Manufacturing TFT-LCD (thin film transistor liquid crystal display) panels is a complicated and highly technical process. The three major stages in TFT-LCD panel production are the array, LC cell, and module assembly processes. In addition, each finished panel must also pass a series of quality inspection tests, which include defect inspection and lighting tests. The most challenging part of the TFT-LCD manufacturing process is achieving zero fault tolerance for high quality and productivity. One of our customers needed a USB-to-serial solution to transmit data between a host and quality inspection equipment in the TFT-LCD manufacturing process. In such a demanding manufacturing environment, adopting multiple ports and Moxa's ruggedly designed UPort® 1650-16 USB-to-serial converter proved to be the best option.

The UPort® 1650-16 has the following features:

- Standard 19-inch rackmount size and metal housing for industrial-grade requirements
- Up to 16 ports for easy USB-to-serial expansion
- 3-in-1 serial ports for a cost-effective solution
- True USB 2.0 Hi-Speed transmission for greater productivity
- 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission during inspection
- Each serial port has its own LED indicator for easy troubleshooting



Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 16
Serial Standards:
UPort 1610-16: RS-232
UPort 1650-16: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded

Performance
Baudrate: 50 bps to 921.6 Kbps (including 500 Kbps)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Window 2000, Windows XP/2003/Vista/2008/7 x86/x64, WinCE 5.0/6.0, Linux 2.4.x, 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 2475 g (5.45 lb)
Packaged: 3440 g (7.58 lb)
Dimensions: 440 x 45.5 x 198.1 mm (17.32 x 1.79 x 7.80 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

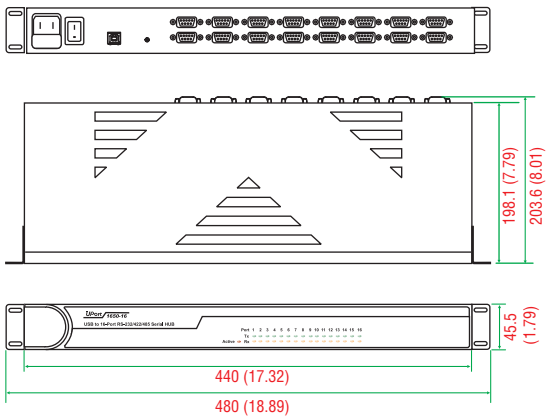
Standards and Certifications
Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 100 to 240 VAC external power
Power Consumption:
UPort 1610-16: 130 mA @ 100 VAC
UPort 1650-16: 150 mA @ 100 VAC

MTBF (mean time between failures)
Time:
UPort 1610-16: 138,704 hrs
UPort 1650-16: 120,001 hrs
Database: MIL-HDBK-217F

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1610-16: 16-port RS-232 USB-to-serial converter
UPort 1650-16: 16-port RS-232/422/485 USB-to-serial converter

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications
Rackmount Kit: Metal plates and screws

Package Checklist
- 1 UPort 1600-16 USB-to-serial converter
- USB-IF certified cable
- Power cord
- 1 mini DB9 female to terminal block adaptor (UPort 1650-16 only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 2210/2410

2 and 4-port RS-232 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 Kbps maximum baudrate for super fast data transmission
- Built-in 15 KV ESD protection for all serial ports
- Drivers provided for Windows and Linux
- Supports Fixed-Base COM Utility for setting the initial extended COM port number
- LEDs for easy monitoring

Overview

The UPort® 2210/2410 USB-to-serial converters allow you to connect 2 or 4 RS-232 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 2210 and UPort® 2410 are cost-effective solutions for both new and legacy RS-232 devices, and are perfect for mobile, instrumentation, and point-of sale applications.

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports:
UPort 2210: 2
UPort 2410: 4
Serial Standards: RS-232
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded

Performance
Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Mark, Space
Flow Control: RTS/CTS, XON/XOFF
FIFO: 16 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support
Operating Systems: Windows 2000, Windows XP/2003/Vista/2008/7 x86/x64, Linux 2.6.x, 3.0.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: Polycarbonate (PC)
Weight:
Product only:
UPort 2210: 120 g (0.26 lb)
UPort 2410: 210 g (0.46 lb)
Packaged:
UPort 2210: 325 g (0.72 lb)
UPort 2410: 455 g (1 lb)
Dimensions:
UPort 2210: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)
UPort 2410: 80 x 35 x 185 mm (3.15 x 1.38 x 7.28 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class B
EMS: EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC-61000-4-6, IEC 61000-4-8, IEC-61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Power Consumption:
UPort 2210: 140 mA @ 5 VDC
UPort 2410: 240 mA @ 5 VDC

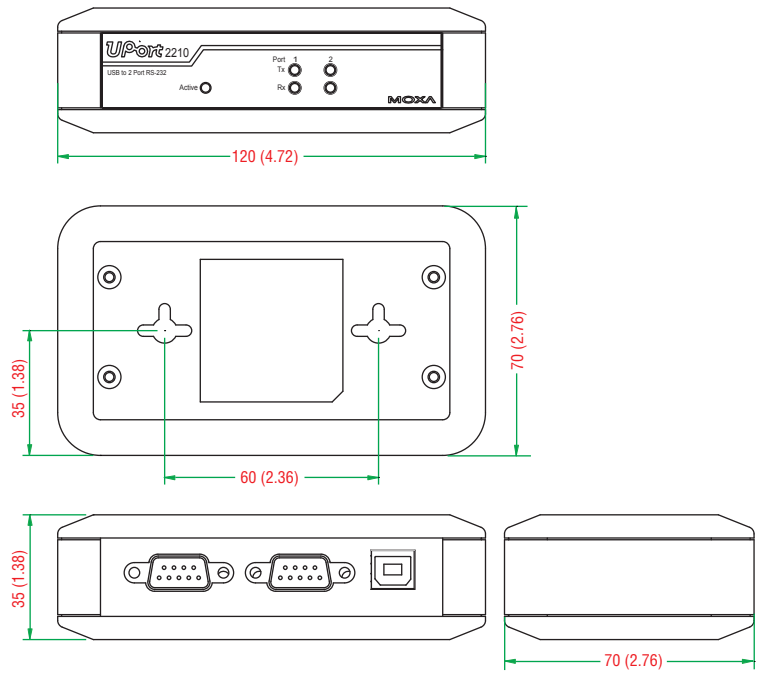
MTBF (mean time between failures)
Time:
UPort 2210: 4,221,778 hrs
UPort 2410: 3,901,775 hrs
Database: Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

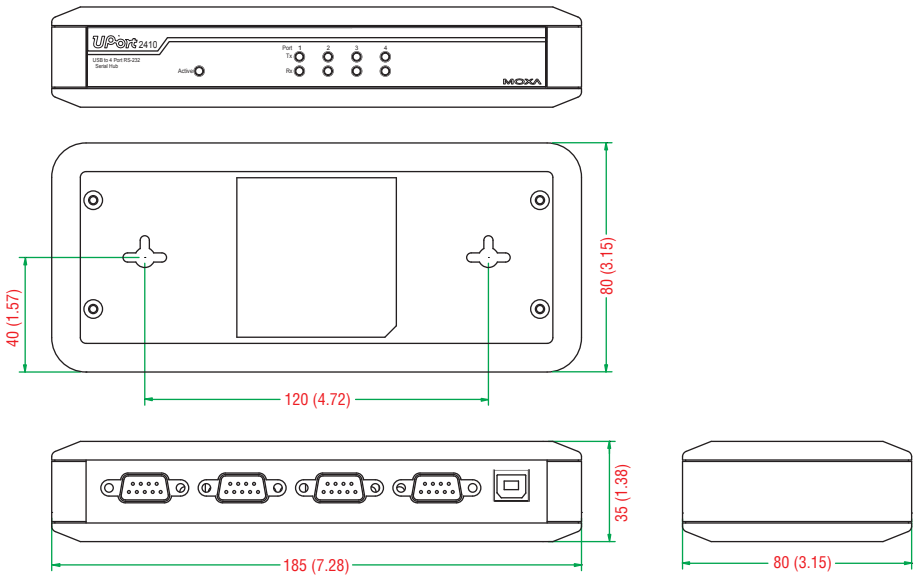
Dimensions

Unit: mm (inch)

UPort® 2210



UPort® 2410



Ordering Information

Available Models

UPort 2210: 2-port RS-232 USB-to-serial converter
UPort 2410: 4-port RS-232 USB-to-serial converter

Package Checklist

- 1 UPort 2210 or UPort 2410 USB-to-serial converter
- USB-IF certified cable
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 404/407

4 and 7-port industrial-grade USB hubs

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- USB-IF certification
- Dual power inputs (power jack and terminal block)
- 15 KV ESD Level 4 protection for all USB ports
- Rugged metal housing
- DIN-Rail and wall mountable
- Comprehensive diagnostic LEDs
- Choose bus power or external power (UPort 404)

Introduction

The UPort® 404 and UPort® 407 are industrial-grade USB 2.0 hubs that expand 1 USB port into 4 and 7 USB ports, respectively. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. The UPort® 404/407 have received USB-IF Hi-Speed certification, which is an indication that both products are reliable, high quality USB 2.0 hubs.In addition, the hubs are fully compliant with the USB Plug & Play spec and provide a full 500 mA of power per port, ensuring that your USB devices will function properly. The UPort® 404/407 hubs' support of 12-40 VDC power makes them ideal for mobile applications. Externally powered USB hubs are the only way to guarantee the broadest compatibility with USB devices.

USB-IF Certification

The UPort® 404 and UPort® 407 USB 2.0 industrial-grade USB hubs have passed USB-IF (USB Implementers Forum) certification. USB-IF verifies a number of strict electrical requirements for the high-speed USB operation of USB hubs designed to the USB 2.0 specification. This means that the UPort® 404/407 support Hi-Speed USB 2.0 for up to 480 Mbps USB transmission, which is fully compliant with interoperability requirements, is enough power for devices to function, and provides for a successful transition back to high-speed operation from the suspend state.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than one thousand volts of ESD with a high rise time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 404/407 USB hubs provide ESD level 4 (contact 8 KV, air 15 KV) protection, which increases the quality and value of the user's end-product.

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Upstream: 1 USB port, Type B connector
Downstream:
UPort 404: 4 USB ports, Type A connectors
UPort 407: 7 USB ports, Type A connectors
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)
Supply Current: 500 mA max. per channel

Physical Characteristics
Housing: Aluminum
Weight: (product only)
UPort 404: 850 g (1.87 lb)
UPort 407: 950 g (2.1 lb)
Dimensions:
UPort 404: 80 x 35 x 130 mm (3.15 x 1.38 x 5.12 in)
UPort 407: 100 x 35 x 192 mm (3.94 x 1.38 x 7.55 in)

Environmental Limits
Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temperature Models: -40 to 85°C (-40 to 185°F)
Storage Temperature:
Standard Models: -20 to 75°C (-4 to 167°F)
Wide Temperature Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
Safety: UL 508, LVD
EMC: CE, FCC
EMI: EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4, FCC Part 15 Subpart B Class A
EMS: EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 12 to 40 VDC external power
Power Consumption:
UPort 404: 1300 mA @ 12 VDC, 690 mA @ 24 VDC, 470 mA @ 36 VDC
UPort 407: 2300 mA @ 12 VDC, 1130 mA @ 24 VDC, 790 mA @ 36 VDC

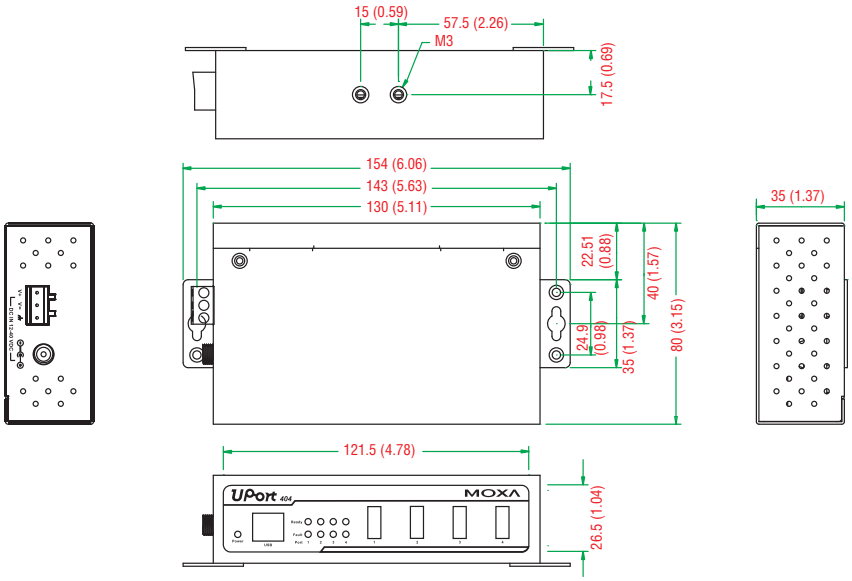
MTBF (mean time between failures)
Time:
UPort 404: 1,490,340 hrs
UPort 407: 1,111,361 hrs
Database: Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

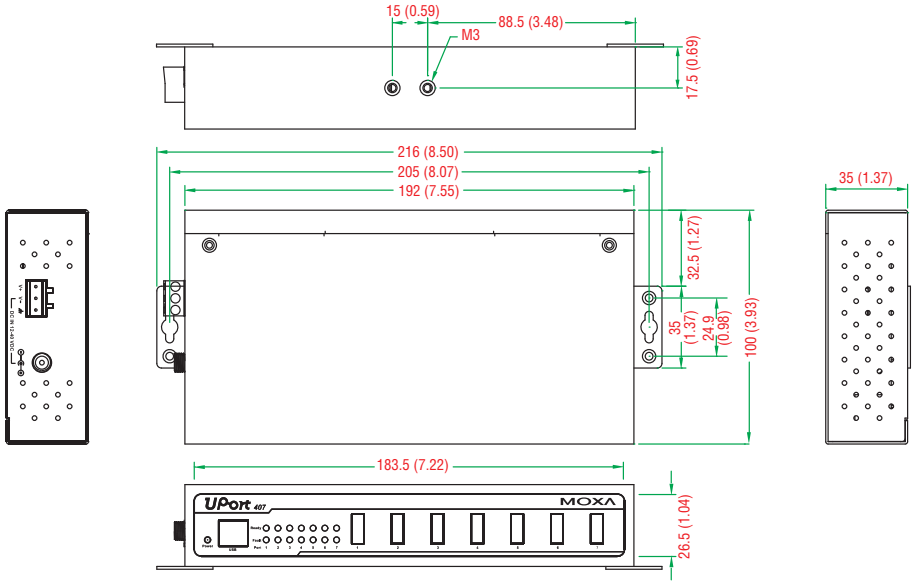
Dimensions

Unit: mm (inch)

UPort® 404



UPort® 407



Ordering Information

Available Models

UPort 404: 4-port industrial USB hub, adaptor included, 0 to 60°C operating temperature
UPort 407: 7-port industrial USB hub, adaptor included, 0 to 60°C operating temperature
UPort 404-T: 4-port industrial USB hub, -40 to 85°C operating temperature
UPort 407-T: 7-port industrial USB hub, -40 to 85°C operating temperature

Optional Accessories (can be purchased separately)

Wall Mount Kit: Metal plates and screws
DK-35A: Mounting Kit for 35-mm DIN-Rail
Din-Rail Kit: Din-Rail kit for the UPort 400 Series
PWR-12300-WP-S1: 100-240 VAC to 12 VDC @ 3 A power adaptor
(Note: Power cords not included with power adaptor)
PWR-Plug-USJP-01: US /JP plug, 2-pin power cord
PWR-Plug-UK-01: UK plug, 2-pin power cord
PWR-Plug-EU-01: EU plug, 2-pin power cord
PWR-Plug-AU-01: SAA plug, 2-pin power cord
PWR-Plug-CN-01: CN plug, 2-pin power cord

Package Checklist

- 1 UPort 404 or UPort 407 industrial-grade USB hub
- USB-IF certified cable
- Power adaptor (UPort 404/407 only)
- Quick installation guide (printed)
- Warranty card

UPort® 204/207

4 and 7-port entry-level USB hubs

- Hi-Speed USB 2.0 for up to 480 Mbps of USB transmission
- USB-IF certification
- Compatible with USB 1.1 devices
- 15 KV ESD Level 4 protection for all USB ports
- Wall mountable
- Comprehensive diagnostic LEDs
- Full 500 mA of power per port
- Choose bus power or external power (UPort 204 only)

Introduction

The UPort® 204 and UPort® 207 are entry-level USB 2.0 hubs that expand 1 USB port into 4 and 7 USB ports, respectively. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. The UPort® 204/207 have received USB-IF Hi-Speed certification and are fully Plug & Play. 500 mA of power per port ensures that your USB devices will function properly and use of 12-40 VDC power makes them ideal for mobile applications. Externally USB hubs provide a broad USB device compatibility.

USB-IF Certification

The UPort® 204/207 USB 2.0 entry-level USB hubs are USB-IF (USB Implementers Forum) certified. USB-IF verifies a number of strict electrical requirements for the Hi-Speed USB operation of USB hubs designed to the USB 2.0 specification. This means that the UPort® 204/207 support Hi-Speed USB 2.0 for up to 480 Mbps USB transmission (fully compliant with interoperability requirements) has enough power for devices to function and provides for a successful transition back to high-speed operation from the suspend state.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than one thousand volts of ESD with a high rise time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 204/207 USB hubs provide ESD level 4 (contact 8 KV, air 15 KV) protection, which increases the quality and value of the user's end-product.

Specifications

USB Interface

Compliance: USB 1.1/2.0 compliant
Upstream: 1 USB port (Type B connector)
Downstream:
UPort 204: 4 USB ports, Type A connectors
UPort 207: 7 USB ports, Type A connectors
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)
Supply Current: 500 mA max. per channel

Physical Characteristics

Housing: Polycarbonate (PC)
Weight: (product only)
UPort 204: 800 g (1.76 lb)
UPort 207: 875 g (1.93 lb)
Dimensions:
UPort 204: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)
UPort 207: 80 x 35 x 185 mm (3.15 x 1.38 x 4.72 in)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 508, LVD
EMC: CE, FCC
EMI: EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4, FCC Part 15 Subpart B Class A
EMS: EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Input Voltage: 12 to 40 VDC external power
Power Consumption:
UPort 204: 1210 mA @ 12 VDC, 610 mA @ 24 VDC, 430 mA @ 36 VDC
UPort 207: 2170 mA @ 12 VDC, 1070 mA @ 24 VDC, 730 mA @ 36 VDC

MTBF (mean time between failures)

Time:
UPort 204: 1,577,573 hrs
UPort 207: 1,059,201 hrs
Database: Telcordia (Bellcore), GB

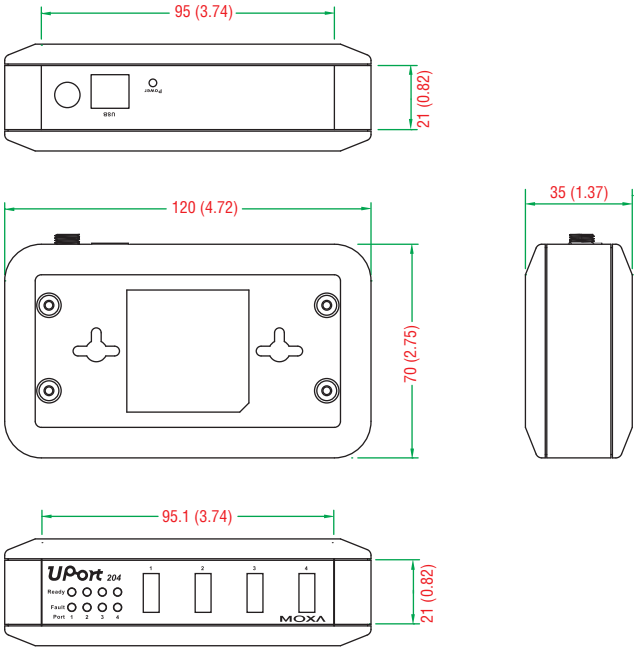
Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

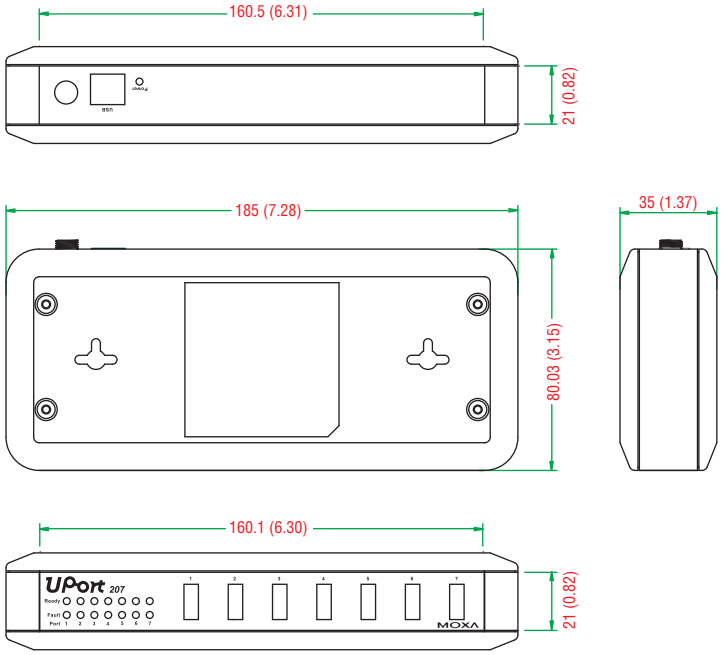
Dimensions

Unit: mm (inch)

UPort® 204



UPort® 207



Ordering Information

Available Models

UPort 204: 4-port entry-level USB hub, adaptor included
UPort 207: 7-port entry-level USB hub, adaptor included

Optional Accessories (can be purchased separately)

PWR-12300-WP-S1: 100-240 VAC to 12 VDC @ 3 A power adaptor
(Note: Power cord not included with power adaptor)
PWR-Plug-USJP-01: US /JP plug, 2-pin power cord
PWR-Plug-UK-01: UK plug, 2-pin power cord
PWR-Plug-EU-01: EU plug, 2-pin power cord
PWR-Plug-AU-01: SAA plug, 2-pin power cord
PWR-Plug-CN-01: CN plug, 2-pin power cord

Package Checklist

- 1 UPort 204 or UPort 207 entry-level USB hub
- USB-IF certified cable
- Power adaptor
- Quick installation guide (printed)
- Warranty card